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PATENT  
IOS9601CIPB

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: D'Ausilio, et al.

Examiner: Swiatek, Robert P.

Serial No.: 10/736,887

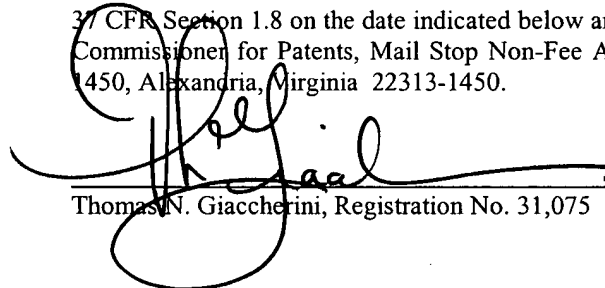
Group Art Unit: 3643

Title: **In Orbit Space Transportation  
& Recovery System**

Filed: 15 December 2003

**CERTIFICATE OF MAILING UNDER 37 C.F.R. SECTION 1.8**

The undersigned hereby certifies that this document is being deposited with the United States Postal Service in accordance with the provisions of 37 CFR Section 1.8 on the date indicated below and is addressed to The Commissioner for Patents, Mail Stop Non-Fee Amendment, P.O. Box 1450, Alexandria, Virginia 22313-1450.

  
Thomas N. Giaccherini, Registration No. 31,075

Date **24 Sept  
2004**

**DISCLOSURE STATEMENT**

The Commissioner for Patents  
Mail Stop Non-Fee Amendment  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

The Applicants submit this Disclosure Statement in accordance with 37 CFR Sections 1.56, 1.97 and 1.98. A completed PTO Form-SB/08A&B accompanies this Disclosure Statement.

## **DISCLOSURE DOCUMENTS**

### **Non-Patent Publications**

#### **Document A**

A general description of conventional nuclear-propulsion systems may be found in a text entitled A Critical Review of Space Nuclear Power and Propulsion, edited by Mohamed S. El-Genk, which was published by the American Institute of Physics in 1994. Please note the description of the SP-100 System in Figure 2 on page 25.

#### **Document B**

Various nuclear electric propulsion systems are described in a publication entitled Nuclear Electric Propulsion, A Summary of Concepts Submitted to the NASA/DoE/DoD Nuclear Electric Propulsion Workshop, which was held in Pasadena, California on 19-22 June 1990, J. Barnett, Workshop Chairman.

#### **Document C**

The U.S. Departments of Energy and Defense and NASA developed plans for a Generic Flight System for space-based defense systems and NASA exploration missions called SP-100 in the mid-1980's. The SP-100 was designed to supply nuclear-power for military and civilian space systems. This early system was designed as a single-use power stage for a single, permanently attached payload; and was never configured for any on-orbit rendezvous, docking or servicing missions. The SP-100 is described in the SP-100 Technical Summary Report, which was prepared for the U.S. Department of Energy by the Jet Propulsion Laboratory and the California Institute of Technology in September, 1994.

Disclosure Statement for U.S.S.N. 10/736,887  
Docket No. IOS9601CIPB  
24 September 2004  
Page 3

#### Document D

The Aerospace Division of the Olin Corporation proposed a small engine for the small satellite community called the Small Upper Stage (SUS). The SUS was designed to accomplish low Earth orbit transfers, orbit circularizations and plane changes using hydrazine propulsion.

#### Document E

In an article entitled Topaz Two Proves to Be a Gem for International Tech Transfer, contained in Technical Applications Report from Ballistic Missile Defense Organization, 1995, thermoionic reactors for space-based power generation are disclosed.

#### Document F

Prospects for Nuclear Electric Propulsion Using Closed-Cycle Magnetohydrodynamic Energy Conversion, by R. Litchford et al. was presented at the 12th Annual Advanced Space Propulsion Workshop in Huntsville, Alabama on 3-5 April 2001.

#### Document G

J. Collins et al. disclose a Small Orbit Transfer Vehicle for On-Orbit Servicing and Resupply which was presented at the 15th Annual Utah State University Conference on Small Satellites at Logan, Utah, 13-16 August 2001.

#### Document H

R. Michael Hord published an article entitled *CRC Handbook of Space Technology: Status and Projections*, published by CRC Press, Inc. in 1984.

Disclosure Statement for U.S.S.N. 10/736,887  
Docket No. IOS9601CIPB  
24 September 2004  
Page 4

Document I

Samuel A. Cohen et al. published an article entitled *The Grand Challenge: A New Plasma Thruster* in the December 1988 edition of Launchspace.

Document J

An advertisement by General Electric entitled *GENERAL ELECTRIC AND NASA-Leaders in Space Technology* describes a space station concept that includes a nuclear reactor.

Document K

TRW produced a brochure for an Orbital Maneuvering Vehicle in 1985.

## **U.S. Patents**

TRW has patented several methods and apparatus intended for the space transportation market. In U.S. Patent No. 4,471,926, Steel describes a Transfer Vehicle for Use in Conjunction with a Reusable Space Shuttle. This spacecraft has a propulsion system that uses a low-thrust bi-propellant liquid rocket engine to provide a soft, low-acceleration ascent. In U.S. Patent No. 4,575,029, Harwood and Love disclose a spacecraft for transporting a payload from a space shuttle in a low altitude parking orbit to an operational orbit. In U.S. Patent No. 4,943,014, Harwood and Love reveal their "soft ride" method for changing the altitude or position of a spacecraft in orbit using a liquid bi-propellant engine.

In United States Patent No. 4,664,344, Harwell describes an apparatus and method of capturing an orbiting spacecraft. This device comprises a relatively small mechanical probe and fixture operated by an astronaut during a spacewalk.

In U.S. Patent No. 4,754,601, Minovitch discloses "a propulsion system for reusable space-based vehicles is presented wherein the propulsive working fluid is atmospheric gas."

In U.S. Patent No. 5,260,639, De Young et al. describe "a method of supplying power to a device such as a lunar rover located on a planetary surface."

In U.S. Patent No. 6,213,700, Koppel discloses a "method [which] serves to place a space vehicle, such as a satellite, on a target orbit such as the orbit adapted to normal operation of the space vehicle and starting from an elliptical initial orbit that is significantly different from, and in particular more eccentric than the target orbit."

In U.S. Patent No. 6,357,700, Provitola describes "an spacecraft/airship, which uses buoyancy and thrusters to ascend into space with lifting gas as propellant or fuel for thrusters, which may be conventional thrusters or electric turbojets or ion thrusters."

In U.S. Patent No. 5,779,195, Basuthakur et al reveal "a satellite assembly [that] is formed from any number of bus modules which have a substantially common shape and interior space volume."

In U.S. Patent No. 6,478,257, Oh et al. describe "systems and methods that employ a phase change material to provide thermal control of electric propulsion devices."

In U.S. Patent No. 3,825,211, Minovitch presents a "space vehicle [which] carries a vaporizable propellant....[E]nergy is transmitted to the vehicle while in space by a laser beam originating on the ground or some other body or satellite."

In U.S. Patent No. 6,364,252, Anderman discloses a method of using dwell times in intermediate orbits to optimize orbital transfers, as well as an apparatus for satellite repair.

In U.S. Patent No. 6, 669,148, Anderman et al. describes a method and apparatus for supplying orbital space platforms.

In U.S. Patent No. 5,294,079, Draznin et al. describes a space transfer vehicle.

## **PROSECUTION HISTORY OF RELATED APPLICATIONS**

The Applicant filed Parent Application U.S. Serial No. 09/918,705 on 30 July 2001 (Docket No. ITS9601). The Patent Office issued an Office Action dated 26 December 2002 which contained a Section 103 rejection of Claims 1 and 3-21, and an objection to Claim 2. The Examiner cited U.S. Patent No. 4 754 601- Minovitch as the basis of the Section 103 rejection, and also cited De Young 5 260 639, Koppel 6 213 432 and Provitola 6 357 700, only "as examples of orbital spacecraft."

Instead of responding to the Office Action dated 26 December 2002, the Applicants submitted a First Continuation-in-Part Application (Docket No. ITS9601CIPA), Patent Application Serial No. 10/298,138, on 15 November 2002. A Notice of Allowance was issued on 26 September 2003 together with an Examiner's Amendment which cited Minovitch 3 825 211 and 4 754 601, De Young 5 260 639 and Oh 6 478 257 "as examples of relevant prior art."

Instead of paying the Issue Fee for USSN 10/298,138, the Applicants filed the Present Application (Docket No. IOS9601CIPB) on 15 December 2003.

Disclosure Statement for U.S.S.N. 10/736,887

Docket No. IOS9601CIPB

24 September 2004

Page 8

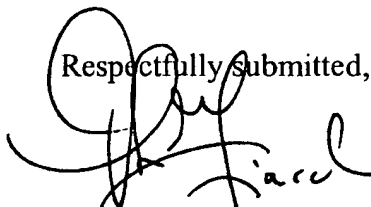
**DOCUMENTS SUBMITTED WITH THIS  
DISCLOSURE STATEMENT**

The documents submitted with this Disclosure Statement are organized in three binders. The comb binder contains the El-Genk document (A). A first three ring white binder contains the *Nuclear Electric Propulsion* document (B). A second three ring white binder contains the remainder of the documents (C-K).

**CONCLUSION**

The Applicants submit that none of the documents described above disclose the Invention as claimed in the present Patent Application. A First Office Action has not yet issued for the Present Application. The Applicants believe that no fee is required to submit this Disclosure Statement.

Respectfully submitted,

  
Thomas N. Giaccherini,  
Applicants' Attorney  
Registration No. 31,075

24 Sept 2004.

**Giaccherini**

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Carmel Valley, California 93924

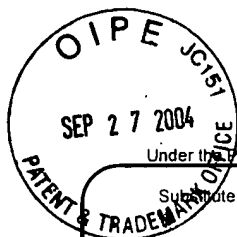
831.659.5300

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by First Class Mail on Friday 24 September 2004 with a Rule 8 Certificate.





PTO/SB/08A (08-03)

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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/736,887
Filing Date	15 December 2003
First Named Inventor	D'Ausilio
Art Unit	3643
Examiner Name	Swiatek, Robert P
Attorney Docket Number	IOS9601CIPB

Sheet One of Three

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 4 471 926		Steel	
		US- 4 575 029		Harwood	
		US- 4 943 014		Harwood	
		US- 4 664 344		Harwell	
		US- 4 754 601		Minovitch	
		US- 5 260 639		DeYoung	
		US- 6 213 700		Koppel	
		US- 6 357 700		Provitola	
		US- 5 779 195		Basuthakur	
		US- 6 478 257		Oh	
		US- 3 825 211		Minovitch	
		US- 6 364 252		Anderman	
		US- 6 669 148		Anderman	
		US- 5 294 079		Draznin	
		US-			
		US-			
		US-			
		US-			
		US-			

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND

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**INFORMATION DISCLOSURE  
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**Complete if Known**

Sheet <b>2</b> of <b>3</b>	<b>Application Number</b>	10/736,887
	<b>Filing Date</b>	15 December 2003
	<b>First Named Inventor</b>	D'Ausilio
	<b>Art Unit</b>	3643
	<b>Examiner Name</b>	Swiatek, Robert P
	<b>Attorney Docket Number</b>	IOS9601CIPB

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	A	EL GENK A Critical Review of Space Nuclear Power and Propulsion	
	B	BARNETT Nuclear Electric Propulsion	
	C	JPL SP-100 Technical Summary Report- Volume 1- Executive Summary	
	D	OLIN Small Upper Stage	
	E	Topaz II Proves to be a Gem for International Tech Transfer	
	F	LITCHFORD Prospects for Nuclear Electric Propulsion	
	G	COLLINS Small Orbit Transfer Vehicle	
	H	HORD CRC Handbook of Space Technology: Status and Projections	
	I	COHEN The Grand Challenge: A New Plasma Thruster	
	J	General Electric and NASA- Leaders in Space Technology	

<b>Examiner Signature</b>		<b>Date Considered</b>	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Sheet	3	of	3	Attorney Docket Number	IOS9601CIPB

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	K	TRW- A Low Cost Premium Performance OMV	

Examiner Signature		Date Considered	
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